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A CASE OF GASTROSTOMY

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WOMAN, AGED SIXTY-SIX, WHO SURVIVED THE
OPERATION EIGHTEEN MONTHS

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E.S., a widow, aged sixty-six, came under my care at the Sheffield Public Hospital and Dispensary in March, 1879. She complained of great difficulty of swallowing, of pain in the throat, and of loss of flesh. The symptoms dated from the commencement of the year; she assigned no cause for them, and denied having ever swallowed any corrosive or very hot liquid. There was neither history nor sign of syphilis; and, beyond very considerable emaciation, there appeared nothing abnormal in her condition of body (including thoracic and abdominal organs), except that on swallowing water it took several gulps to get a mouthful down. A diagnosis of epitheliomatous stricture of the oesophagus was made. She was ordered a liquid diet and five grains of iodide of potassium three times a day. Her symptoms continued to increase, and she begged that something might be done, as she was starving. She was admitted as an in-patient on March 24, and ordered milk and beef-tea to drink, and nutrient enemata of minced sweetbread and beef. It was now found that on swallowing a small mouthful of fluid, about half of it was regurgitated in about half a minute. On attempting to pass a bougie down the oesophagus it was stopped at a level some little way below the cricoid cartilage, and not even a No. 5 (the smallest size that was used) could be got lower. A little blood and mucus came up after the passage of the bougies, and the operation caused great discomfort and sense of suffocation. During the next few days a somewhat larger proportion of the fluid taken into the mouth was got down. Bougies were then tried again with the same result. On March 29 her weight was 6st. 10lbs., her height being 5ft. The amount of regurgitation soon increased again, and the enemata ceased to be well retained. On April 2 her weight was 6st. 7lbs. She was obviously emaciating, and was very anxious to undergo an operation, as her constant sense of hunger was very distressing to her. After consultation with my colleagues, gastrostomy was decided on. On April 4 she was accordingly placed under the influence of ether; and, under a carbolic acid steam spray, the operation was performed as follows:—An incision, $2\frac{1}{2}$ inches long, was made nearly vertically downwards (very slightly outwards), from the lowest part of the eighth costal cartilage of the

left side, dividing consecutively the skin and superficial fascia, the aponeurosis of the oblique muscles, some fibres of the transversalis muscle, and the transversalis fascia and peritoneum. The stomach now at once presented at the wound, having a healthy appearance; the edge of the left lobe of the liver came into view at each inspiration, and at the lower part of the wound the great omentum began to protrude. Two or three small arteries were twisted, but the bleeding was very slight, and no blood entered the peritoneal cavity. A curved needle in handle, armed with a doubled length of silver wire, was then passed from without through the parietes about three-fourths of an inch to the left of the upper part of the wound, into the presenting part of the stomach (apparently near the great cul-de-sac), transfixing all its coats, out again an inch or more further to the right, and then through the parietes three-fourths of an inch to the right of the upper part of the wound. The needle having been removed, the suture was temporarily fixed at each end over a piece of bougie, and a second suture was then similarly passed and secured near the lower part of the wound. The stomach being thus held in contact with the parietes and plugging up the wound, a vertical incision about an inch long was made into it, and then, by means of a catgut continuous suture passed through all its coats, it was attached closely to the margins of the lower two-thirds of the wound, the upper third of the wound being closed by a separate suture. One small artery in the wall of the stomach had to be twisted. As the catgut suture was applied the mucous membrane became somewhat everted, and a few drops of translucent, viscid fluid of pale yellow colour escaped from the cavity of the stomach. The two double wire sutures were now loosened from the bougie, and the middle parts being drawn out from the interior of the stomach were divided. The two interior ends of each of the resulting four double wires were then twisted together around the substance of a small india-rubber ring* at four points of its circumference. The exterior ends were now pulled tight, so that the ring was drawn closely against the mucous membrane of the stomach inside the wound, and the two wires coming from each puncture in the skin were then twisted together over a piece of bougie bent in a circle round the wound. By this means the peritoneal surface of the stomach and that of the anterior abdominal parietes were held closely in contact for the space of half an inch or so all round the wound. The artificial mouth thus made would just admit the end of the little finger. An india-rubber tracheotomy tube, cut short and plugged with a cork, was now put into it and fastened by means of a thread attached to the shield of the tube on each side and tied round the body. No food was now given, and the wound was dressed with carbolized gauze, &c. There was no retching during the anaesthesia (which lasted about an hour and a half), and the pulse remained good throughout.

Two hours and a quarter after the completion of the operation, the cork was removed from the tracheotomy tube, and a soft india-rubber tube passed through it, apparently into the duodenum. By means of a funnel, half a teaspoonful of Darby and Gosden's "fluid meat," mixed with two ounces of water, was poured in and retained. The patient complained of some pain

* Such as is used for holding together the ribs of a closed umbrella, and is very useful in performing circumcision, and in amputating fingers, &c.

in the hypochondriac region. During the night she was fed in a similar manner every three or four hours with a few ounces of milk, brandy, egg, and "fluid meat," and she was allowed a little water to sip. She got some sleep after a small dose of laudanum. The temperature remained about normal, and the pulse below 80. During the next two days and nights the feeding was continued about every four hours with quantities gradually increased from two to eight fluid ounces. At the end of this period, the number of feedings by the stomach was reduced to three or four a day, and at the same time the patient was allowed to take milk freely by the mouth, and was able to swallow it better than before the operation, so that she got down a pint or more daily. Nutrient enemata were continued occasionally for nearly a fortnight. Within a week of the operation solid food was administered through the fistula, and very soon the artificial feeding was restricted to solids, sufficient fluid being taken by the mouth. Previous to this there was frequently a regurgitation and overflow of fluid from the fistula during the process of feeding. The solids consisted mostly of boluses made of bread-crumbs mixed with "fluid meat," macaroni, moderately boiled, oysters, and small sausages. Many other articles of diet were occasionally given in addition, such as meat cut into fingers, haricot beans boiled, gem biscuits, and Brand's meat lozenges. These substances were pushed through the fistulous opening (the tracheotomy tube being removed), and packed into the stomach by the little finger. When the meal was thus supplied, the opening was plugged, by means of either a piece of india-rubber tubing, closed by a clip, or an india-rubber nipple-shield.

There was some suppuration about the upper and outer parts of the wound, and it was not thoroughly healed for a month after the operation, but there was no sign of peritonitis or traumatic fever. Then began the greatest trouble in connection with the case. The plug was never quite water-tight, and, in spite of careful padding and bandaging, a little gastric juice was constantly oozing from the fistula on to the skin around; and although the mucous membrane of the stomach kept perfectly sound and healthy, the cuticle of the skin was eroded, no doubt by a process of digestion, from the margin of the mucous membrane to an inch or two beyond. Partial relief was afforded by alkaline ointments, especially by one of carbonate of magnesia with vaseline, and, in spite of considerable discomfort from this source, the patient continued to thrive fairly, so that on July 4, three months after the operation, she weighed precisely the same as she did two days before the operation—viz., 6st. 7lbs. She frequently sat in bed, and on two or three occasions was up in the ward for a little while, but most of her time was spent lying in bed reading.

About this time, I saw a case in which Mr. Howse had successfully operated with a very small wound through the fibres of the rectus, and seeing the great advantage of this method (which entirely prevented any gastric juice erosion), I persuaded my patient to allow me to attempt the closure of the present fistula and the substitution of a smaller one for it. Accordingly, on August 2, she was placed under the influence of ether, and the anterior wall of the stomach was fixed, by the following method, to the abdominal parietes half-way between the fistula and the middle line of the abdomen. Six pieces of silver wire, each about a foot long, were attached in the middle of their lengths, and at equal distances apart, to an

india-rubber umbrella ring. Both ends of each wire were threaded through the eye of a straight needle, and then, one needle being taken at a time in a pair of holding forceps, each was passed through the fistula into the stomach and made to perforate the anterior wall of the stomach and the abdominal parietes, so as to form, by their six points of exit from the skin, a circle an inch in diameter. By pulling the wires tight, the india-rubber ring was then dragged into the stomach (through the fistula), and pressed the stomach wall close to the abdominal wall behind the rectus muscle. A second india-rubber ring was now laid on the skin, and each of the six double wires was twisted firmly over it, one end of each wire passing inside and the other outside the ring. Four days later a small vertical incision was made within the area of the outer ring through the skin and rectus muscle. A pair of rather sharp-pointed dressing forceps was then pushed into this wound, and through the remaining tissues into the stomach, entering it within the area of the inner ring. A piece of india-rubber tubing was then guided through the old fistula into the blades of the forceps, and one end of it drawn out through the new wound, whilst the other end was left in the stomach. The edges of the old fistula were then drawn together from side to side with strapping, and the patient was fed through the new tube. A week later the patient was again anaesthetised, and, the six wires being cut externally and the outer ring taken away, the inner ring with the wires attached to it was removed through the old fistula, which had contracted considerably during the past week. The edges of the old fistula were then pared, and the mucous membrane was, to a slight extent, separated from the adjoining tissues, and its edges brought together by fine silk sutures. The skin edges were then fastened together by interrupted silver-wire sutures and a quill suture. This operation was done under the carbolic-acid spray, and the wound was dressed with carbolized gauze, &c. The old fistula remained closed till the sixth day after the operation, and then a little escape of fluid took place at the puncture mark of one of the sutures. The sutures were now removed, but in two days more the lower part of the wound broke open, and one of the silk sutures came away. A small fistula at the old site thus resulted, and, as the patient declined to have any further operation, it had to be plugged as before, and consequently continued gradually to increase in size by stretching. The plugging, however, was now more successful than it had previously been, a piece of india-rubber tubing plugged by cork being used, and henceforward there was very little trouble from escape of gastric juice.

Instead of the solid food previously given, milk and beef-tea, containing finely chopped meat and vegetables, were poured into the stomach through the tube traversing the rectus muscle, by the side of which there was never any leakage; the tube being kept constantly in, and closed, except at meal times, by a clip. About two pints of nutrient fluid were poured in daily in three feedings, and the patient usually took the best part of a pint of milk by the mouth in addition. She was very anxious to swallow solids, and soaked bread was tried on several occasions, but she could never get it down. For a year longer she continued to live in this state in very tolerable comfort, but by September, 1880, she was getting decidedly more emaciated; and by October 15 she was unable to swallow anything. She

then rapidly sank, and died on October 19, eighteen months and a half after undergoing the first operation.

Autopsy.—The body was much emaciated, but the weight was not ascertained. On opening the abdomen the stomach was seen to be of moderate size, and was pretty normal as to position and structural appearance. The two fistulous openings, which were situated about midway between the oesophageal and pyloric orifices, were each completely surrounded by strong peritoneal adhesions, but there were no adhesions elsewhere in the peritoneum. A little above the level of the bifurcation of the trachea the calibre of the oesophagus was found to be closely constricted, an ordinary probe only just passing through. The constriction was three-fourths of an inch long. The walls of this part were somewhat thick and hard, but not greatly so, and there was no ulceration, but a scar-like appearance of mucous membrane, with some small firm ridges or bridles. Above the constriction the tube was slightly dilated. Several of the mediastinal glands in the neighbourhood were somewhat enlarged. The lungs were congested posteriorly, and both apices were partly consolidated with recent inflammatory effusion, pus being found in their smaller bronchial tubes. On examining a portion of the constricted part of the oesophagus under the microscope nothing was seen of an epitheliomatous or carcinomatous structure.

The autopsy, therefore, showed that my diagnosis of cancerous stricture was wrong. Some weeks afterwards I ascertained from a relative of the patient that about three months before she presented herself at the hospital she had been found one day with her mouth white and sore, and would give no account of what had produced that condition; but a bottle of strong ammonia was found in her room, and, as she had been much depressed at the time, it was supposed she had purposely swallowed some. She went to a surgeon a month or two afterwards on account of difficulty of swallowing, but unfortunately for herself she kept back from him, and subsequently from me, the fact that she had taken strong ammonia.

Although the case is thus not such an interesting one as during life I thought it, it shows, like several other recent cases of the same operation, that opening the stomach may be performed with safety; that the operation, if decided on, should not be delayed too long; that considerable quantities of food may (and should) be given immediately the fistula is established; and that the plan that Mr. Howse and others have practised of making a vertical opening through the fibres of the rectus so small that the feeding-tube fits closely is preferable to the method I adopted; and, lastly, the case furnishes a warning as to the danger of trusting to a patient's history, where motives may exist for misrepresenting it, no less than as to the universal importance of a complete and exact diagnosis.

I must not conclude this record without acknowledging the great patience and interest expended on the case by the House Surgeons in charge, Mr. C. C. Claremont, Mr. J. M. Willey, and Mr. E. S. Morgan; and the constant care bestowed by the nurses of the ward. My thanks are also due to Dr. T. H. Morton for the photographs he has taken of the morbid specimen.

